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Applicants: Robert A. Street, Ping Mei, Jeffrey T. Rahn

Assignee: Xerox Corporation

Title: LOW DATA LINE CAPACITANCE IMAGE SENSOR ARRAY  
USING AIR-GAP METAL CROSSOVER

Serial No. 09/898,321 File Date: July 2, 2001

Examiner: P. E. Brock II Art Unit: 2815

Atty. Dkt. No.: A0682 (XC-004)

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Date: March 5, 2004

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REPLY BRIEF

Sir:

This Reply Brief is filed in response to the Examiner's Answer mailed from the US Patent and Trademark Office on January 5, 2004.

The Examiner's Answer raises several questions regarding the legal basis for the rejections of the pending claims. For brevity, Applicants focus the present Reply Brief on selected portions of the Examiner's reasoning that appear to contradict established legal precedence.

Applicants' Appeal Brief argues in painstaking detail why the TFT-based structures/methods taught by Kingsley are inconsistent with the MOSFET-type structures/methods taught by Ahn, and therefore why it would have been neither possible nor obvious to combine the teachings of Kingsley and Ahn to produce the structures recited in Claims 1-7. Applicants

raise similar arguments regarding the rejection of Claims 8-10 and 21-30 over Fukuda and Ahn.

In response to the detailed arguments raised in Applicants' Appeal Brief, the Examiner's Answer repeatedly points out that Ahn is utilized simply for its teaching of an air gap, and that the manufacturing method disclosed by Ahn is not relevant. The following quotations from the Examiner's Answer illustrate a few instances of such language:

With regard to appellant's argument that "Ahn neither teaches nor suggests that the disclosed air gap structure could be utilized to modify the fluoroscopic radiation imager of Kingsley," it should be noted that **Ahn is used to teach that an air gap structure is a well known dielectric structure to use between metal layers.** Ahn's lack of teaching a fluoroscopic radiation imager does not factor into the rejection. **Ahn is only used to teach an alternate dielectric to be used between Kingsley's metal lines at the crossover location.** (Page 15, first full paragraph, emphasis added.)

While the manufacturing process of Ahn would have to be modified in order to only use an air-gap structure for the crossover locations in [Kingsley/Fukuda], the claims are drawn to a device. The rejection is not required to show how the method of manufacture of [Kingsley/Fukuda] and Ahn would be modified, only that the claimed device would be obvious. The rejection meets all criteria for rejecting the device claim. Therefore, the appellant's arguments are not persuasive, and the rejection is proper. (See Examiner's Answer, page 16, starting at line 6, and pages 20-21, last six lines on page 20 and first two lines on page 21; emphasis added.)

1. The Examiner Contradicts Established Precedent by Ignoring the Teaching of Ahn "as a Whole"

The Examiner's argument that the "rejection is not required to show how the method of manufacture of [Kingsley/Fukuda] and Ahn would be modified" is considered erroneous at least because it precludes considering the teachings of Ahn "in its entirety, i.e., as a whole, including portions that would lead away from the claimed invention" (see MPEP 2141.02, citing *W.L. Gore & Associates, Inc. v. Garlock, Inc.*, 721 F.2d 1540, 220 USPQ 303 (Fed. Cir. 1983), cert. denied, 469 U.S. 851 (1984)). Applicants' Appeal Brief sets forth numerous reasons why it would not have been obvious to combine the specific MOSFET-type structure and methodology taught by Ahn, taken as a whole, with the teachings of Kingsley/Fukuda, and why, if the combination was made, the resulting structure would not work as intended. The Examiner's Answer ignores these specific teachings of Ahn, and instead selectively focuses only on the generalized air gap structure taught by Ahn. Had the Examiner considered Ahn "as a whole", as set forth in Applicants' Appeal Brief, he would have recognized that the MOS-type fabrication process taught by Ahn is entirely inconsistent with the TFT-type fabrication process utilized by Kingsley and Fukuda, and therefore, if Ahn's teachings "as a whole" would have been incorporated into the TFT-type fabrication process of Kingsley and Fukuda, the resulting structure would have been inoperable.

2. The Examiner Clearly Resorts to Impermissible Hindsight Reconstruction And "Picking and Choosing" Isolated Disclosures in Ahn

The Court of Appeals for the Federal Circuit has ruled that "it is impermissible to use the claimed invention as an instruction manual or 'template' to piece together the

teachings of the prior art so that the claimed invention is rendered obvious. ... This court has previously stated that '[o]ne cannot use hindsight reconstruction to pick and choose among isolated disclosures in the prior art to deprecate the claimed invention." (*In re Fritch*, 972 F.2d 1260 (Fed. Cir. 1992)).

By ignoring the teachings of Ahn "as a whole", it is now apparent that the Examiner's rejections are based on using Applicants' disclosure as a manual or template to piece together the selected teachings of Kingsley/Fukuda and Ahn, and then "picks and chooses" teachings of Ahn that support his rejections while ignoring those that don't.

First, in rejecting the present claims, the Examiner cites Kingsley and Fukuda as main references, and argues that these references teach TFT-like structures similar to those recited in the claims. Applicant notes that neither Kingsley nor Fukuda teach or suggest using air gap structures to minimize signal noise, so the motivation to look to Ahn clearly does not come from Kingsley and Fukuda. Moreover, Ahn neither teaches nor suggests that the disclosed MOS-like air gap structure can be utilized in a TFT-type fabrication process. Accordingly, Applicants contend that the Examiner impermissibly relied Applicants' own disclosure for motivation to combine the teachings of Kingsley/Fukuda and Ahn.

Next, after impermissibly establishing a motivation for looking to Ahn, the Examiner clearly resorts to impermissible "picking and choosing" to eliminate the teachings of Ahn that are inconsistent with his stated argument. As painstakingly pointed out in Applicants' Appeal Brief, Ahn is directed to forming air gap structures using MOS-type fabrication processes that are inconsistent with the TFT-like structures of Kingsley and Fukuda. In his Answer, the Examiner admits

"the manufacturing process of Ahn would have to be modified in order to only use an air-gap structure for the crossover locations in [Kingsley/Fukuda]" (see quote above). However, Ahn neither teaches nor suggests that the MOS-type air gap structures could be modified for TFT-like fabrication processes. In an apparent attempt to avoid having to explain why this modification would have been obvious, the Examiner instead states that "Ahn is only used to teach an alternate dielectric to be used between Kingsley's metal lines at the crossover location" (see quote above).

The Examiner's use of Kingsley/Fukuda to provide a basic TFT structure, Applicants own disclosure for motivation to look to Ahn, and then the selected use of Ahn's air gap structure while ignoring the inconsistencies of Ahn's MOS-like structure and fabrication method with the TFT structure/methods of Kingsley and Fukuda, is a clear example of impermissible hindsight reasoning and "picking and choosing" isolated disclosures of a prior art reference. Accordingly, Applicants believe the Examiner's Answer raises serious concerns that the Examiner's rejections are contrary to legal precedence, and as such indicates that the pending rejections are improper and should be withdrawn.

CONCLUSION

For the foregoing reasons, it is submitted that the Examiner's rejections and supporting arguments directed to Claims 1-10 and 21 and 24-30 are erroneous, and reversal of these rejections is respectfully requested. It is also submitted that, due to the allowability of Claim 21, Claims 22 and 23 should be reinstated and passed to issuance.

Respectfully submitted,



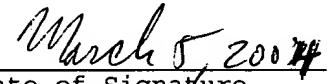
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